

REMARKS

The foregoing amendment amends claims 3, 14, 26-28, 32, 33, 48, and 49, cancels claims 1, 5-9, 22-25, 29-31, 34-47, 50-72, 75, 79 and 80, and adds claims 81-86. The amendment and the new claims are supported by the specification. *See e.g.* page 64 line 15 - page 67 line 22, FIGS. 7, 8 and page 74 line 9 - page 84 line 4 and FIGS. 13-19. Upon entry of the amendment, claims 2-4, 10-21, 26-28, 32, 33, 48, 49, 73, 74, 76-78 and 81-86 are presented for examination in this application.

REQUIREMENT FOR INFORMATION

The Examiner requested a copy of the publication referenced in the non-patent literature document listed in the Information Disclosure Statement filed on January 28, 2005 as citation no. 4. A copy of the document, as well as an English translation of the document is submitted herewith.

OBJECTION TO CLAIM 48

The Examiner objected to claim 48 because of an informality. The foregoing amendment amends “conform to the contract information” to “conform to contract information.” Applicants submit that the objection has been overcome and request that it be withdrawn.

REJECTION OF CLAIMS 1-4, 6-8, 10-12, 14-16, 18-20, 22-36, 48, 49, 73 and 74 UNDER 35 U.S.C. 102(b)

The Examiner rejected claims 1-4, 6-8, 10-12, 14-16, 18-20, 22-36, 48, 49, 73 and 74 under 35 U.S.C. 102(b) as being anticipated by PCP: An End-to-End Measurement-Based Call Admission Control for Real-Time Services over IP Networks (hereinafter PCP). This rejection is traversed for the reasons set forth below.

The foregoing amendment cancels claims 1, 6, and 22 so the rejection of these claims is now moot.

The Examiner rejected claims 2 and 10 relying on pages 3 and 4 of PCP. Claim 2 recites, *inter alia*, a retry communication control method comprising:

after the second predetermined period, estimating according to a communication quality level of the preceding trial-class packets whether or not it is possible to send packets of the trial class; and

if it is possible, again sending packets of the trial class for the predetermined period from the caller terminal apparatus.

Claim 10 recites a retry communication control system having means for performing similar functions to the above-described features.

In some embodiments of the invention, the method/system sends trial class packets from a caller terminal apparatus to check a communication quality for a predetermined period (step S11 in FIG. 6). If the communication quality is insufficient (step S13; Quality is insufficient branch), the method/system waits for a predetermined period (step S15). After the predetermined period, the method/system estimates according to a communication quality level of the preceding trial class packets whether or not it is possible to send packets of the trial class (step S16). If it is possible, the method/system again sends trial class packets from the caller terminal apparatus for the predetermined period (step S11) (*see* page 62 line 8 - page 64 line 5 and FIGS. 5, 6).

PCP describes a PCP setup scheme for a real-time connection where a setting-up source transmits a series of probing packets tagged as low priority in the IP header. Upon receipt of the first probing packet, a destination node starts measuring a probing packets arrival statistics over a given length period. In the probing packets arrival statistics, the destination node compares a received bandwidth with a given threshold to determine whether or not sufficient bandwidth is available. If sufficient bandwidth is available, the destination node transmits a feedback packet. Upon reception of the feedback packet, the setting-up

source switches from probing phase to data phase and then transmits data packets. If the setting-up source receives a rejection feedback packet (or does not receive a feedback packet within a given length period), the connection is terminated (*see* page 3 section 2 fourth paragraph and FIG. 1). It should be noted that Applicant understands that the Examiner has equated the probing packets and data packets in PCP with the trial class packets and priority class packets of the claimed invention, respectively.

PCP fails to disclose or suggest that the PCP setup scheme estimates according to a communication quality level of the preceding probing packets whether or not it is possible to send probing packets, as recited in claims 2 and 10. In contrast to claims 2 and 10, the PCP setup scheme estimates according to a probing packets arrival statistics whether or not it is possible to send data packets (priority class packets). It should be noted that the PCP setup scheme does not focus on estimating whether or not it is possible to send probing packets (trial class packets) because probing packets are sent in series from the setting-up source to the destination node.

Accordingly, Applicants respectfully request that the rejection of claims 2 and 10 (and the claims that depend therefrom) under 35 U.S.C. 102(b) be withdrawn.

The Examiner rejected claims 3 and 14 in paragraph 10 of the Office Action. Claim 3 recites, *inter alia*, a retry communication control method comprising:

after the second predetermined period, estimating whether or not it is possible to send packets of the trial class according to an execution probability (max/total , where “total” represents the number of packet transfer apparatuses trying to send packets of the trial class within a certain time unit, and “max” represents the maximum number of packet transfer apparatuses trying to send packets of the trial class within the certain time unit and allowed to successfully transfer the packets of the trial class without deteriorating a communication quality) estimated from a communication quality of the preceding trial-class packets; and

if it is possible, again sending packets of the trial class for the predetermined period from the caller terminal apparatus.

Claim 14 recites a retry communication control system having means for performing similar functions to the above-described features.

In some embodiments, the method/system sends trial class packets from a caller terminal apparatus to check a communication quality for a predetermined period (step S21 in FIG. 8). If the communication quality is insufficient (step S23; Quality is Insufficient branch), the method/system waits for a predetermined period (step S25). After the predetermined period, the method/system estimates an execution probability estimated from a communication quality of the preceding trial-class packets (step S26). If it is possible, the method/system again sends packets of the trial class from the caller terminal apparatus for the predetermined period. It should be noted that the execution probability (max/total) means a ratio of “the maximum number of packet transfer apparatuses trying to send packets of the trial class within the certain time unit and allowed to successfully transfer the packets of the trial class without deteriorating a communication quality,” to “the number of packet transfer apparatuses trying to send packets of the trial class within a certain time unit” (see page 64 line 15 - page 67 line 22 and FIGS. 7, 8).

PCP fails to disclose or suggest that the PCP setup scheme estimates whether or not it is possible to send probing packets according to an execution probability (max/total, where “total” represents the number of setting-up sources trying to send probing packets within a certain time unit, and “max” represents the maximum number of setting-up sources trying to send probing packets within the certain time unit and allowed to successfully transfer the probing packets without deteriorating a communication quality) estimated from a communication quality of the preceding probing packets, as recited in claims 3 and 14. It should be noted that PCP setup scheme does not focus on the ratio of the maximum number of setting-up sources capable of sending probing packets within the certain time unit to the number of setting-up sources trying to send probing packets within the certain time unit.

Accordingly, Applicants respectfully request that the rejection of claims 3 and 14 (and the claims that depend therefrom) under 35 U.S.C. 102(b) be withdrawn.

The Examiner rejected claims 4 and 18 by citing to page 3 of PCP. Claim 4 recites, *inter alia*, a retry communication control method comprising:

estimating from time to time whether or not the communication quality of the packets is sufficient, . . .

if it becomes insufficient, immediately stopping to send packets of the trial class and continuously stopping to send packets of the trial class for a second predetermined period; . . .

Claim 18 recites a retry communication control system having means for performing similar functions to the above-described features.

In some embodiments, the method/system sends trial class packets from a caller terminal apparatus (step S31 in FIG.10). The method/system estimates from time to time whether or not the communication quality of the packets is sufficient (step S33). If the communication quality becomes insufficient, the method/system stops sending trial class packets and does not send trial class packets for a predetermined period (step S36) (*see* page 67 line 25 - page 70 line 6 and FIGS. 9, 10).

PCP fails to disclose or suggest that the PCP setup scheme estimates from time to time whether or not the communication quality of the packets is sufficient, and if it becomes insufficient, to stop sending probing packets and to wait for a second predetermined period, as recited in claims 4 and 18. It should be noted that PCP setup scheme does not focus on stopping the transmission of probing packets if the communication quality of the packets becomes insufficient.

Accordingly, Applicants respectfully request that the rejection of claims 4 and 18 (and the claims that depend therefrom) under 35 U.S.C. 102(b) be withdrawn.

The foregoing amendment cancels claims 7 and 8 so the rejection of these claims is now moot.

Claims 11 and 12 depend from claim 10 and are patentable for at least the same reasons given above for claim 10.

Claims 15 and 16 depend from claim 14 and are patentable for at least the same reasons given above for claim 14.

Claims 19 and 20 depend from claim 18 and are patentable for at least the same reasons given above for claim 18.

The foregoing amendment cancels claims 23 and 36 and 24 and 25 so the rejection of these claims is now moot.

Claims 26-28 depend from claim 81 and are patentable for at least the same reasons given below for claim 81.

The foregoing amendment cancels claims 29-31 so the rejection of these claims is now moot.

Claims 32 and 33 depend from claim 82 and are patentable for at least the same reasons given below for claim 82.

The foregoing amendment cancels claims 34 and 35 so the rejection of these claims is now moot.

The Examiner rejected claim 48 in paragraph 33 of the Office Action. Claim 48 recites, *inter alia*, a packet transfer apparatus . . . comprising:

a class transition monitor part to . . . determine whether or not the type of service related to the priority level of each packet conforms to the contract information; . . .

a packet rewrite part to rewrite the type of service into that conforming to the contract information if it is determined that the type of service does not conform to the contract information.

In one embodiment of the invention, the packet transfer apparatus includes a class transition monitor part and a packet rewrite part. The class transition monitor part determines whether or not a type of service related to the priority level of each packet

conforms to the contract information. The packet rewrite part rewrites the type of service into that conforming to the contract information if it does not conform to the contract information (*see* page 84 line 10 - page 87 line 13 and FIGS. 20, 21).

PCP fails to disclose or suggest that the PCP setup scheme rewrites the type of service into a type that conforms to the contract information if it is determined that type of service does not conform to the contract information, as recited in claim 48. It should be noted that PCP setup scheme does not focus on rewriting the type of service.

Accordingly, Applicants respectfully request that the rejection of claim 48 under 35 U.S.C. 102(b) be withdrawn.

The Examiner rejected claim 49 by relying on page 3 of PCP. Claim 49 recites, *inter alia*, a packet transfer apparatus . . . comprising;

a packet-flow-rate monitor part having a preset threshold value for a minimum flow rate of packets, to monitor . . . whether or not a flow rate of packets sent from terminal apparatuses concerning the call is below the threshold value; and

a packet discard part to discard packets of which a flow rate is below the threshold value.

In one embodiment of the invention, the packet transfer apparatus includes a packet-flow-rate monitor part and a packet discard part. The packet-flow-rate monitor part has a preset threshold value for a minimum flow rate of packets and monitors whether or not a flow rate of packets from terminal apparatuses concerning the call is below the threshold value. If the flow rate of packets is below the threshold value, the packet discard part discards the packets (*see* page 85 line 26 - page 86 line 22, page 90 line 19 - page 91 line 17, page 94 line 13 - page 95 line 8 and FIGS. 20, 24). This prevents packets from being exchanged at too low a flow rate (*i.e.*, below a lower flow rate limit). More specifically, when one exchange of packets is interrupted due to an accident or other event, another exchange of packets is started instead of restarting the interrupted exchange. Restarting the

interrupted exchange of packets would cause confusion. In order to avoid this confusion, one embodiment of the invention monitors a flow rate of packets and discards packets when a flow rate is below the threshold value.

PCP describes that a statistical test, which can be as simple as a comparison of the received bandwidth with a given threshold, is performed to decide whether enough resources are available in the network to accept the considered connection (*see* page 3 section 2 fourth paragraph). PCP fails to disclose or suggest that PCP setup scheme monitors whether or not a flow rate of packets sent from terminal apparatuses concerning the call is below the threshold value, as recited in claim 49. It should be noted that PCP monitors whether or not a flow rate of packets is above the threshold value. If the flow rate is above the threshold value, the packets are not exchanged (or are discarded). If the flow rate of packets is below the threshold value, the packets are exchanged (or are not discarded). Therefore, PCP can not prevent packets being exchanged at too low a flow rate. In contrast, the claimed invention monitors whether or not a flow rate of packets is below the minimum flow rate threshold value. If the flow rate of packets is above the threshold value, the packets are not discarded. If the flow rate of packets is below the threshold value, the packets are discarded.

Accordingly, Applicants respectfully request that the rejection of claim 49 under 35 U.S.C. 102(b) be withdrawn.

The Examiner rejected claim 73 in paragraph 35 of the Office Action. Claim 73 recites, *inter alia*, a packet transfer apparatus comprising:

a packet rewrite part to rewrite . . . destination address of a packet
whose originator address is in the notified address into an address of a monitor
apparatus.

In one embodiment of the claimed invention, a packet transfer apparatus includes a packet rewrite part. The packet rewrite part rewrites the destination address of a packet into an address of a monitor apparatus (*see* page 107 line 5 - page 108 line 5, page 110 lines 12-25, page 110 line 3 - page 112 line 4 and FIGS. 30, 31).

PCP fails to disclose or suggest that the PCP setup scheme rewrites a destination address of a certain packet, as recited in claim 73. It should be noted that PCP does not focus on monitoring a certain packet.

Accordingly, Applicants respectfully request that the rejection of claim 73 under 35 U.S.C. 102(b) be withdrawn.

The Examiner rejected claim 74 by citing to page 3 and Figures 5 and 6 of PCP. Claim 74 recites, *inter alia*, a packet transfer apparatus comprising:

a label rewrite part to set . . . an LSP label for passing through a monitor apparatus as an MPLS label of a packet to be sent from a terminal apparatus whose address is in the notified addresses to a destination terminal apparatus.

In one embodiment of the claimed invention, a packet transfer apparatus includes a label rewrite part. The label rewrite part sets an LSP (label switch path) label of a certain packet as an MPLS (multi-protocol label switching) label, in order to monitor the certain packet (*see* page 114 line 19- page 115 line 1, page 115 lines 16-21 and FIG. 33).

PCP fails to disclose or suggest that the PCP setup scheme sets an LSP label of a certain packet as an MPLS label, as recited in claim 74. It should be noted that PCP does not focus on monitoring a certain packet.

Accordingly, Applicants respectfully request that the rejection of claim 74 under 35 U.S.C. 102(b) be withdrawn.

REJECTION OF CLAIMS 5, 9, 13, 17, 21 AND 76-78 UNDER 35 U.S.C. 103(a)

The Examiner rejected dependent claims 5, 9, 13, 17, 21 and 76-78 under 35 U.S.C. 103(a) as being unpatentable over PCP in view of Graham et al. (U.S. 6,097,722). The Examiner relied upon PCP for all of the elements of the independent claims from which these claims depend. Claims 13, 17, 21 and 76-78 depend from independent claims 2-4, 10, 14 and 18 and Applicants submit that the dependent claims are patentable for at least the reasons discussed above in connection with the independent claims. Furthermore,

Applicants submit that Graham does not cure any of the above-noted deficiencies of PCP. Claims 5 and 9 have been cancelled so the rejection of these claims is now moot.

NEW CLAIMS 81-86

The foregoing amendment adds independent claims 81 to 86. Claim 81 recites, *inter alia*, a packet communication method . . . comprising:

in a case where the at least one of the plural circuits has failed and a flow of packets of the priority class in the failed at least one of the plural circuits is switched to at least one of circuits other than the failed at least one of the plural circuits,

transferring packets of the priority class through the at least one of circuits other than the failed at least one of the plural circuits, without estimating whether or not the communication quality of packets of the trial class is sufficient in the at least one of circuits other than the failed at least one of the plural circuits, using the first packet transfer apparatus; . . .

Claims 82 recites a packet communication system and claim 83 recites a program installed in a packet communication system having elements that perform similar features to the above-described features.

In one embodiment of the invention, two equivalent circuits are prepared for circuit failures between two packet transfer apparatuses. When one circuit fails, a flow of priority class packets in the failed circuit is switched to the other circuit. A packet transfer apparatus transfers the priority class packets through the other circuit, without estimating whether or not the communication quality of the trial class packets is sufficient in the other circuit (*see* page 74 line 9 - page 84 line 4 and FIGS. 13-19). It should be noted that a conventional packet transfer apparatus always transfers trial class packets before transferring priority class packets, to estimate whether or not a sufficient band capacity for the priority class packets can be secured. If sufficient band capacity is not secured (*e.g.*, the total flow rate of trial

class packets and priority class packets is above the trial-class band capacity), the priority class packets are discarded.

PCP describes that a packet flow is monitored at the time of re-routing (*see* page 15 section 6 third paragraph). PCP however fails to disclose or suggest that at the time of re-routing, the PCP setup scheme transfers data packets (priority class packets) through a new path without estimating whether or not the communication quality of probing packets (trial class packets) is sufficient in the new path, as recited in claims 81-83. It should be noted that PCP does not focus on non-estimation of whether or not the communication quality of probing packets is sufficient in the new path at the time of re-routing. Therefore, if a total flow rate of data packets and probing packets is above the band capacity for probing packets when the PCP setup scheme estimates whether or not the communication quality of probing packets is sufficient in the new path, then at the time of re-routing the PCP setup scheme discards data packets.

Claims 26-28, 32, 33, and 76-78 depend from independent claims 81 and 82 and are patentable for at least the reasons discussed above.

Claim 84 recites, *inter alia*, a packet communication method . . . comprising:
in a case where a flow of packets of the priority class in the first pass is switched to the second pass due to handover,
transferring packets of the priority class through the second pass,
without estimating whether or not the communication quality of packets of the trial class is sufficient in the second pass, using the second packet transfer apparatus; . . .

Claims 85 recites a packet communication system and claim 86 recites a program installed in a packet communication system having elements performing similar features to the above-described features.

In one embodiment of the invention, two passes are provided between two packet transfer apparatuses. When a flow of priority class packets in a first pass is switched to a

second pass due to handover, a packet transfer apparatus transfers priority class packets through the second pass, without estimating whether or not the communication quality of the trial class packets is sufficient in the second pass (*see* page 74 line 9 - page 84 line 4 and FIGS. 13-19). It should be noted that the conventional packet transfer apparatus transfers trial class packets before transferring priority class packets to estimate whether or not a sufficient band capacity for the priority class packets can be secured. If a sufficient band capacity is not secured (*e.g.*, the total flow rate of trial class packets and priority class packets is above the trial class band capacity), the priority class packets are discarded.

PCP describes that a packet flow is monitored at the time of re-routing (*see* page 15 section 6 third paragraph). PCP fails to disclose or suggest that at the time of re-routing, the PCP setup scheme transfers data packets (priority class packets) through a new path without estimating whether or not the communication quality of probing packets (trial class packets) is sufficient in the new path, as recited in claims 84-86. It should be noted that PCP does not focus on non-estimation of whether or not the communication quality of probing packets is sufficient in the new path at the time of re-routing. Therefore, if a total flow rate of data packets and probing packets is above the band capacity for probing packets when the PCP setup scheme estimates whether or not the communication quality of probing packets is sufficient in the new path at the time of re-routing, the PCP setup scheme discards data packets.

Applicants respectfully submit that claims 84-86 recite novel features not taught or rendered obvious by PCP.

CONCLUSION

The application is believed to be in condition for allowance and a notice of allowance is respectfully requested. If there are any issues that can be addressed via telephone, the Examiner is asked to contact the undersigned at 404.532.6946. The Commissioner is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account 11-0855.

Respectfully submitted,

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